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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/172,298	10/14/98	RHODES H	M4065.101/P1

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THOMAS J D'AMICO
DICKSTEIN SHAPIRO MORIN AND OSHINSKY
2101 L STREET NW
WASHINGTON DC 20037-1526

EXAMINER	
MUNSON, G	
ART UNIT	PAPER NUMBER
2811	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.	Applicant(s)
172,298	H. RHODES
Examiner	**Group Art Unit**
G. MUNSON	2811

—Th MAILING DATE of this communication appears on th cover sheet beneath the correspondence address—

P riod for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE THREE MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

☒ Responsive to communication(s) filed on 29 May, 19 June 2001.

☐ This action is **FINAL.**

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle,* 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 1-4, 7-15, 18-23, 25-29, 31-39, 41-63, 65, 66, 115-145 is/are pending in the application.

Of the above claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-4, 7-15, 18-23, 25-29, 31-39, 41-63, 65, 66, 115-145 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Pri rity under 35 U.S.C. § 119 (a)–(d)

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)–(d).

☐ All ☐ Some* ☐ None of the:

☐ Certified copies of the priority documents have been received.

☐ Certified copies of the priority documents have been received in Application No. _____.

☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____.

Attachment(s)

☐ Information Disclosure Statement(s), PTO–1449, Paper No(s). _____

☐ Int rview Summary, PTO–413

☐ Notice of Reference(s) Cited, PTO–892

☐ Notice of Informal Patent Application, PTO–152

☐ Notice of Draftsperson's Pat nt Drawing Revi w, PTO–948

☐ Other _____

Office Action Summary

Prosecution is continued under 37 CFR 1.53(d).

Claims 66 and 140-145 are rejected under 35 U.S.C. 112, first paragraph. The "processor" (claim 53) for particular use in a "camera" is unclear from the specification (page 19). See 37 CFR 1.83(a). Claims 140-145 are contrary to Figure 10. Note that Figures 5-9 show stages during a process of manufacture and do not show a resultant structure of an "imaging decide" or "active pixel" sensor as claimed.

Claims 34-38, 47-52, 117, 118, 122, 123, 127, 128, 132, 133, 137, 138, 142 and 143 are rejected under 35 U.S.C. 112, second paragraph. The preambles with imaging "device", in these dependent claims, are confusing since independent claims 28 and 39 claim an imaging "system" rather than "device". Compare with claims 29 and 41.

The process terminology (claims 31, 32, 38, 41, 42, 51, etc.) is considered only in terms of a necessary *resultant structure* from the process. The process itself is not at issue. The device claims are not limited to the recited process. See MPEP 2113; *In re Brown*, 173 USPQ 685 (CCPA 1972); *In re Fitzgerald*, 205 USPQ 594 (CCPA 1980); *In re Marosi*, 218 USPQ 289,292,293 (CCPA 1983); *In re Thorpe*, 227 USPQ 964 (CAFC 1985).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled

> the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4 and 7-13 are rejected under 35 U.S.C. 102 as unpatentable as shown by Anagnostopoulos et al. See Figures 2A, 3B, 3C.

Claims 53-63, 65 and 66 are rejected under 35 U.S.C. 103 as unpatentable over Anagnostopoulos et al. It would have been obvious that image sensors as in Anagnostopoulos et al (Figures 2A, 3B, 3C) be used with a "processor for processing image data" in order to use the image sensors in a camera (columns 1-2).

Claims 1-3, 7, 12, 14, 15, 18, 19, 25, 26, 28, 29, 31-33, 38, 39, 41-44, 46, 51, 53-55, 57-59, 66, 115-124 and 135-139 are rejected under 35 U.S.C. 103 as unpatentable over the acknowledged prior art in this application (Figures 1, 2, pages 1-12) and Nagasaki et al, considered together. For an imaging device as in the acknowledged prior art (Figures 1, 2), it would have been obvious to use a photogate insulator with higher dielectric constant, as suggested by Nagasaki et al (Figure 17; columns 2-3), in order to increase the capacity of the photogate. From Nagasaki et al, it would have been obvious that the materials used in this invention, e.g., silicon nitride as in claim 12, would achieve a higher capacity of the photogate than use of silicon oxide. From Nagasaki et al, it also

would have been obvious that the materials used in this invention would achieve a lower capacity of the photogate than use of tantalum oxide, because tantalum oxide has a higher dielectric constant than silicon nitride.

Claims 4, 27, 45, 56, 125-134 and 140-144 are rejected under 35 U.S.C. 103 as unpatentable, the evidence being the acknowledged prior art in this application (Figures 1, 2, pages 1-12) and Nagasaki et al, applied as in the above rejection, further considered together with Koike et al. The claimed materials (claims 4, 27, 45, 56) are conventional to use as a transparent or semi-transparent materials, as applicant would agree and as shown by Koike et al (column 3), which would have been obvious to use to achieve a transparent or semi-transparent photogate electrode. Moreover, it would have been obvious to have the photogate insulator extend over an adjacent "gate stack" (claims 120-124) as the photogate insulator does over "gate stack" 18 of Koike et al (Figure 2), in order to achieve a photogate insulator and adjacent gate as in the acknowledged prior art in this application (Figure 1)

Claims 8, 10, 11, 20, 22, 23, 34, 36, 37, 47, 49, 50, 60, 62 and 63 are rejected under 35 U.S.C. 103 as unpatentable, the evidence being the acknowledged prior art in this application (Figures 1, 2, pages 1-12) and Nagasaki et al, applied as in the above rejection, further considered with Suzuki. The claimed materials (NO or ON), used by Suzuki (column 4), are well known to have a higher dielectric constant than silicon oxide, as applicant agrees (37 CFR 1.56, MPEP 2144.-3), which would have been obvious to use for a photogate insulator in order to achieve a higher capacity for the photogate.

Claims 1-4, 7-15, 18-23, 25-29, 31-39, 41-63, 65, 66, 115-124 and 135-139 are rejected under 35 U.S.C. 103 as unpatentable, the evidence being the acknowledged prior art in this application (Figures 1, 2, pages 1-12) and Nagasaki et al, applied as in the above rejection, further considered together with Okada et al and Anagnostopoulos et al. The claimed material (ONO), used by Okada et al and Anagnostopoulos et al, is well known to have a higher dielectric constant than silicon oxide, as applicant agrees (37 CFR 1.56, MPEP 2144.03), which would have been obvious to use for a photogate insulator in order to achieve a higher capacity for the photogate. Moreover, it would have been obvious to use a silicon nitride layer for a photogate insulator, because silicon nitride has a higher index of refraction which improves light transmittance through the gate electrode, and because silicon nitride blocks indium from leaching out of an indium tin oxide photogate and into the substrate (Anagnostopoulos et al, columns 3-4). Furthermore, it would have been obvious to use a silicon nitride layer to enhance reliability in terms of dielectric strength for a photogate insulator (Okada et al, column 12, lines 29-31).

Claims 125-134 and 140-144 are rejected under 35 U.S.C. 103 as unpatentable, the evidence being acknowledged prior art in this application (Figures 1,2, pages 1-12), Nagasaki et al, Okada et al and Anagnostopoulos et al, as in the above rejection, further considered together with Koike et al, applied as in the above rejection of these claims.

The references are of record.

The arguments in the remarks which accompany the amendment, filed 29 May 2001 and now entered, have been considered but are not persuasive, as noted above. Contrary to the remarks

(pages 4, 5), claim 53 which recites "processor" is not rejected under 35 U.S.C. 112. The specification cites neither Panwar et al nor Shadmon and neither appears to disclose a "processor" for particular use in a "camera"

No claim is allowed.

G. Munson
(703)308-4925 or 0956

September 14, 2001

Gene M. Munson

GENE M. MUNSON
EXAMINER
GROUP ART UNIT 2811